

Heuer, Janice (DEQ)

From: Paulik, Sy (DEQ)
Sent: Tuesday, December 04, 2012 11:54 AM
To: Heuer, Janice (DEQ)
Subject: FW: Dow/OxyChem Ludington South Pond

From: Swiger, Nick (DEQ)
Sent: Monday, November 05, 2012 3:35 PM
To: Paulik, Sy (DEQ); Vanderhoof, John (DEQ)
Cc: Jankowski, Brian (DEQ); Kitler, Steve (DEQ)
Subject: Dow/OxyChem Ludington South Pond

Sy –

Based on my review of the Phase III – Field Investigation for the subject site, I have the following comments:

- 1) The shallow and deep groundwater flow directions measured during the study were towards Pere Marquette River and Lake (shallow only).
- 2) There appears to be an upward vertical gradient near PM river which is indicative of a discharge environment.
- 3) There appears to be approximately 35 gallons per minute of groundwater discharging to the surface water. This volumetric flow rate is alleged to be biased low for several reasons listed in report, which I do not disagree that it could be biased low; however, the measured discharge is only about 14% of the exfiltration amount and is not "in the ballpark" with the given assumptions. For example, if we assume that the actual discharge is 4 times what was measured, the discharge is still only 140 gpm which is still only approximately 50% of the exfiltration water.
- 4) The groundwater that is discharging into the surface water is contaminated with chlorides and other inorganic compounds indicative of the south pond discharge.

To summarize, the goal of the study was to confirm or deny that the water that is being exfiltrated from the south ponds was discharging to PM Lake and/or PM River. The question, generally, was not *if* the groundwater was discharging to the adjacent surface water bodies, but *how much*. Based on this study, approximately 14% of the exfiltration water is discharging to the adjacent surface water bodies (PM Lake & River). This number may be biased low, but it is not in the "reasonable range" where one could conclude the majority of the water that is from the exfiltration is discharging to PM lake or PM river. Further, while the discharge may be biased low, it does account for all the groundwater flux from the entire section of River/Lake of which only half would be from the south pond area.

If you have any further questions, let me know.

Thanks,

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